

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(cobalt near2 tantalum near2 zirconium) near10 alloy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:13
L2	0	(cobalt near5 tantalum near10 zirconium) near20 alloy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:14
L3	423	(cobalt near5 tantalum near10 zirconium) near20 alloy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:14
L4	327	(cobalt near5 tantalum near10 zirconium) near10 alloy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:14
L5	7	I4 same (chip or microtiter or particle)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:16
L6	332	CoTaZr	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:42
L7	12	CoTaZr same (chip or microchip or particle or microtiter)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:56

## EAST Search History

L8	132	Co-Ta-Zr	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:42
L9	116	Co-Ta-Zr same magnet\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:43
L10	178	I6 near10 magnet\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:42
L11	72	Co-Ta-Zr near10 magnet\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:43
L12	38	I11 and @py<"2002"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:51
L13	63	I10 and @py<"2004"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:52
L14	40	I10 and @py<"2002"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:52

## EAST Search History

L15	1236	(CoTaZr or (Co-Ta-Zr) or (cobalt near3 tantalum near3 zirconium))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:59
L16	42	I15 and (chip or microchip or particle) and (biologi\$3 or protein or dna or nuclei or antibody or antigen or protein)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:59
L17	449	(CoTaZr or (Co-Ta-Zr))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:59
L18	24	I17 and (chip or microchip or particle) and (biologi\$3 or protein or dna or nuclei or antibody or antigen or protein)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/31 14:59

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--> (CORAZI OF ) (COSMETIC CANTABRIA  
L1          0 FILE AGRICOLA  
L2          0 FILE BIOTECHNOLOGY  
L3          0 FILE CONFSCI  
L4          0 FILE HEALSAFE  
L5          0 FILE LIFESCI  
L6          22 FILE PASCAL
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TOTAL FOR ALL FILES  
L7 22 (COTAZR OR (COBALT-TANTALUM-ZIRCONIUM))

=> dup rem  
ENTER L# LIST OR (END):17  
PROCESSING COMPLETED FOR L7  
L8 22 DUP REM L7 (0 DUPLICATES REMOVED)

=> l22 and magnetic  
L22 NOT FOUND  
The L-number entered could not be found. To see the definition  
of L-numbers, enter DISPLAY HISTORY at an arrow prompt (=>).

=> l8 and magnetic  
L9 0 S L8  
L10 0 FILE AGRICOLA  
L11 0 S L8  
L12 0 FILE BIOTECHNO  
L13 0 S L8  
L14 0 FILE CONFSCI  
L15 0 S L8  
L16 0 FILE HEALSAFE  
L17 0 S L8  
L18 0 FILE LIFESCI  
L19 22 S L8  
L20 20 FILE PASCAL

TOTAL FOR ALL FILES  
L21 20 L8 AND MAGNETIC

=> d l21 ibib abs total

L21 ANSWER 1 OF 20 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED.  
on STN  
ACCESSION NUMBER: 2007-0130739 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 2007 INIST-CNRS. All rights reserved.  
TITLE (IN ENGLISH): Permeability of fine magnetic particles :  
Measurements, calibration, and pitfalls  
Selected papers from the International  
Magnetics Conference (Intermag 2006), San  
Diego, California, May 8-12, 2006  
AUTHOR: DOK WON LEE; WANG Shan X.; YUN JUN TANG; HONG Jung-Il;  
BERKOWITZ Ami E.  
SHULL Robert D. (ed.)  
CORPORATE SOURCE: Department of Materials Science and Engineering,  
Stanford University, Stanford, CA 94305-4045, United  
States; Western Digital, Lake Forest, CA 92630, United  
States; Department of Physics, University of  
California at San Diego, La Jolla, CA 92093, United  
States  
National Institute of Standards and Technology,  
Gaithersburg, MD, United States  
Institute of Electrical and Electronics Engineers  
(IEEE), New York, NY, United States (org-cong.)  
SOURCE: IEEE transactions on magnetics, (2006), 42(10),  
3335-3337, 8 refs.  
Conference: 41 Intermag 2006 International Magnetics  
Conference, San Diego, California (United States), 8  
May 2006  
ISSN: 0018-9464 CODEN: IEMGAQ  
DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States

LANGUAGE: English  
AVAILABILITY: INIST-222H6, 354000157220113540  
AN 2007-0130739 PASCAL  
CP Copyright .COPYRGT. 2007 INIST-CNRS. All rights reserved.  
AB High-frequency permeability spectra of FeSiB coatings prepared with spark-eroded magnetic particles were studied. In order to measure the relative permeability of FeSiB coatings with low permeability more accurately, the calibration procedure of the existing permeameter was modified. The modified permeability spectra indicate that FeSiB coatings have the relative permeability below 10 and appreciable losses at frequencies above .eqvsim. 20 MHz. Permeability spectra of CoTaZr amorphous films with the relative permeability above 600 were used for the comparison.

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ACCESSION NUMBER: 2006-0516070 PASCAL  
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TITLE (IN ENGLISH): Perpendicular magnetic recording technology at 230 Gbit/in.sup.2  
Proceedings of the 6th International Symposium on Physics of Magnetic Materials (ISPMM 2005), 13-16 September 2005, Singapore

AUTHOR: MOSER A.; BONHOTE C.; DAI Q.; DO H.; KNIGGE B.; IKEDA Y.; LE Q.; LENGSFIELD B.; MACDONALD S.; LI J.; NAYAK V.; PAYNE R.; SCHABES M.; SMITH N.; TAKANO K.; TSANG C.; VAN DER HEIJDEN P.; WERESIN W.; WILLIAMS M.; XIAO M.  
LIU Bo (ed.); LI Kebin (ed.); ZHOU Tiejun (ed.)  
San Jose Research Center, Hitachi Global Storage Technologies, 650 Harry Rd, San Jose, CA 95120, United States

CORPORATE SOURCE: Data Storage Institute, Singapore 117 608, Singapore  
Journal of magnetism and magnetic materials, (2006), 303(2), 271-275, 12 refs.

SOURCE: Conference: 6 ISPMM 2005 International Symposium on Physics of Magnetic Materials, Singapore (Singapore), 13 Sep 2005  
ISSN: 0304-8853 CODEN: JMMMDC

DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: Netherlands  
LANGUAGE: English  
AVAILABILITY: INIST-17230, 354000115478180010

AN 2006-0516070 PASCAL  
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AB A perpendicular recording system that allows areal densities beyond 200 Gbit/in.sup.2 has been designed and tested to investigate the major challenges in perpendicular magnetic recording. The integrated write/read head has a trailing shield to improve the write head field gradient and a conventional CIP-GMR reader. The medium is a low-noise CoPtCr-based oxide medium with a CoTaZr soft underlayer. On track byte error rates at .eqvsim. 50 Mb/s are better than 10.sup.-.sup.4 at .eqvsim.1000 kbpi. Using a 15% off-track criterion at 10.sup.-.sup.2 byte error rate, track densities between 200-240 ktpi are realized, yielding areal densities of 210-233 Gbit/in.sup.2. High-resolution magnetic force microscopy (hrMFM) has been employed to investigate the write characteristics of these heads with improved cross-track resolution. Using a quantitative analysis method, many parameters, such as transition curvature and transition width, are estimated from the hrMFM image. Significant transition curvature is found, which increases the width of the read head response to a transition, T.sub.5.sub.0, by 2-3 nm. These results give insights into the

recording physics of perpendicular recording and in particular point out improvements required for achieving even higher areal densities.

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ACCESSION NUMBER: 2005-0346394 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 2005 INIST-CNRS. All rights reserved.

TITLE (IN ENGLISH): Exchange-biased soft underlayers for perpendicular recording

AUTHOR: TANAHASHI Kiwamu; ARAI Reiko; HOSOE Yuzuru

CORPORATE SOURCE: Storage Technology Research Center, Hitachi, Ltd., Odawara, Kanagawa 256-8510, Japan

SOURCE: IEEE transactions on magnetics, (2005), 41(2), 577-580, 6 refs.

Conference: 15 Annual Magnetic Recording Conference (TRMC 2004), Boulder, Colorado (United States), 11 Aug 2004

ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-222H6, 354000127014970080

AN 2005-0346394 PASCAL  
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AB We inserted NiFe/CoFe/antiferromagnetic-MnIr/ CoFe layers between two CoTaZr soft layers to enhance the exchange-bias field (H.sub.e.sub.b) and then evaluated the effect of this lamination on the spike noise and recording characteristics of CoCrPt-SiO<sub>x</sub> media with an exchange-biased soft magnetic underlayer (SUL). The two CoTaZr layers were exchange-biased radially throughout the disk, and a higher H.sub.e.sub.b was obtained for the upper CoTaZr layer. By using the laminated SUL, spike noise was suppressed even when the total thickness of the CoTaZr layers was increased to 300 nm. Although the medium had a high H.sub.c of 7.0 kOe, a fairly good overwrite and signal-to-noise ratio were obtained. As another application of exchange biasing, we also examined the possibility of combining exchange biasing and antiparallel-coupled (APC) soft layers; i.e., a pinned APC SUL. An exchange-bias field from the pinning layers to the lower CoTaZr layer and an exchange-coupled field between the two CoTaZr layers were successfully applied. The medium with the pinned APC SUL showed no spike noise throughout the disk, and wide-area adjacent track erasure was effectively suppressed.

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ACCESSION NUMBER: 2003-0231923 PASCAL  
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TITLE (IN ENGLISH): Exchange-biased CoTaZr soft underlayer for perpendicular recording

AUTHOR: TANAHASHI Kiwamu; KIKUKAWA Atsushi; HOSOE Yuzuru

CORPORATE SOURCE: Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo 185-8601, Japan

SOURCE: Journal of applied physics, (2003-05-15), 93(10), 8161-8163

ISSN: 0021-8979 CODEN: JAPIAU

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-126

AN 2003-0231923 PASCAL

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AB As a way of controlling the domain structure of a soft magnetic underlayer, we introduced a Pd/antiferromagnetic-MnIr/CoFe trilayer below a CoTaZr soft magnetic underlayer in perpendicular recording media, and we examined the effect of exchange biasing on the spike noise. Films consisting of layer structure-Pd (5 nm thick)/MnIr (7.5 nm)/CoFe (1-10 nm)/CoTaZr (50-200 nm)-were sputter deposited on precoated glass disks. The Fe content in the CoFe layer was varied from 5 to 70 atomic% . After deposition, the films were heated to 250°C and cooled in a magnetic field. Both uniaxial and unidirectional anisotropies were induced along the radial direction of the disk. It was found that the Pd layer promoted a face-centered-cubic-MnIr (111) crystalline texture, while the CoFe layer enhanced the exchange bias field H<sub>sub.e.sub.x</sub> by 1.5-3.2 times, compared with that in the case of a Pd/MnIr/CoTaZr film. The value of H<sub>sub.e.sub.x</sub> was strongly dependent on the CoFe alloy composition. By using the Pd/MnIr/Co<sub>6</sub>Fe<sub>4</sub>O trilayer, spike noise was suppressed when the thickness of the CoTaZr layer ranged from 50 to 200 nm. This suppression is probably due to the fact that the exchange biasing restrained the formation of domain walls in the CoTaZr layers. .COPYRGT. 2003 American Institute of Physics.

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ACCESSION NUMBER: 2003-0227106 PASCAL  
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TITLE (IN ENGLISH): Low-noise CoCrPtO perpendicular media with improved resolution  
AUTHOR: VELU E. M. T.; MALHOTRA Sudhir; BERTERO Gerardo;  
WACHENSCHWANZ David  
CORPORATE SOURCE: Komag Inc., San Jose, CA 95131, United States  
SOURCE: IEEE transactions on magnetics, (2003), 39(2, PART1), 668-672, 11 refs.  
Conference: 13 Annual Magnetic Recording Conference on Recording Systems (TMRC '02), Santa Clara, CA (United States), 26 Aug 2002  
ISSN: 0018-9464 CODEN: IEMGAQ  
DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-222H6, 354000104257920090  
AN 2003-0227106 PASCAL  
CP Copyright .COPYRGT. 2003 INIST-CNRS. All rights reserved.  
AB CoCrPtO perpendicular media with coercivities greater than 6000 Oe, M<sub>sub.r</sub>/M<sub>sub.s</sub> equal to 1.0, and negative nucleation fields exceeding 3000 Oe were produced. The crystallographic, magnetic, and recording properties were optimized with respect to Ru interlayer and CoTaZr soft-underlayer thicknesses. Media with exchange decoupled magnetic grains as small as 7 nm with a narrow size distribution capable of supporting a linear density up to 720 kfci were produced. Thermal decay measured at 50 kfci at ambient temperature was less than 0.1%.

L21 ANSWER 6 OF 20 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED.  
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ACCESSION NUMBER: 2003-0126783 PASCAL  
TITLE (IN ENGLISH): Effects of carbon intermediate layer on structural and magnetic properties of double-layered perpendicular magnetic recording media  
AUTHOR: HONDA Y.; HIRAYAMA Y.; KIKUKAWA A.; FUTAMOTO M.

CORPORATE SOURCE: Central Research Laboratory Hitachi Ltd.,  
Kokubunji-shi 185-8601, Japan  
SOURCE: IEICE Transactions on Electronics, (2002), v  
E85-C(10), 1745-1749, 10 refs.  
ISSN: 0916-8524 CODEN: IELEPJ

DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: Japan  
LANGUAGE: English  
AVAILABILITY: INIST-26604

AN 2003-0126783 PASCAL

AB The effects of an intermediate layer of carbon on the structural and magnetic properties of a CoCrPtTa recording layer were investigated in double-layered perpendicular magnetic recording media with either amorphous CoTaZr or crystalline FeAlSi as soft magnetic backlayers. Introducing a thin layer of carbon enhanced the perpendicular magnetic anisotropy with both soft magnetic backlayers. This result suggests that the introduction of a non-magnetic intermediate layer is useful in improving the basic magnetic properties of the CoCr-alloy recording layer even when an amorphous soft magnetic backlayers is used.

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ACCESSION NUMBER: 2003-0023896 PASCAL  
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TITLE (IN ENGLISH): High-frequency microinductors with amorphous magnetic ground planes  
Selected papers from the 2002 international magnetics conference (INTERMAG 2002),  
Amsterdam, The Netherlands, April 28-May 2, 2002 (Part I of two parts)

AUTHOR: CRAWFORD Ankur M.; GARDNER Donald; WANG Shan X.  
CORPORATE SOURCE: Department of Materials Science and Engineering,  
Stanford University, Stanford, CA 94305, United States;  
Intel Corporation, Santa Clara, CA 95054, United States;  
Departments of Electrical Engineering and Materials Science, Stanford University, Stanford, CA 94305, United States

SOURCE: IEEE transactions on magnetics, (2002), 38(5; PART1),  
3168-3170, 7 refs.  
Conference: INTERMAG 2002: International Magnetics Conference, Amsterdam (Netherlands), 28 Apr 2002  
ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-222H6, 354000105351864120

AN 2003-0023896 PASCAL  
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AB For the first time, inductors were fabricated on silicon using standard silicon processing tools. The 2.75 turn device exhibits a cutoff frequency of 3.3 GHz. The study incorporated ground planes of amorphous CoTaZr below and above the inductor. CoTaZr has a resistivity of .eqvsim. 100  $\mu\Omega \cdot cm$ , a  $4\pi M_{s} \cdot sub.s$  of 15 kG, a permeability of .eqvsim. 870 up to 1.4 GHz, and an  $H_{sub.c}$  of 0.2 Oe (unpatterned film). These properties were monitored during the process and showed no signs of degradation, even after being exposed to process temperatures of 400 °C. Octagonal devices with slotted ground planes had the best frequency response with a cutoff frequency of 3.3 GHz for inductors with 0.4- $\mu m$ -thick ground planes. Maximum inductive enhancement (over air-core inductors) of 50%-60% has been measured for

devices with 1  $\mu\text{m}$  of CoTaZr underneath the inductor. Similarly, two layers of 0.4- $\mu\text{m}$  CoTaZr exhibit increased inductance of 30%-40% with one ground plane and up to 150% with two ground planes.

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ACCESSION NUMBER: 2002-0243367 PASCAL  
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TITLE (IN ENGLISH): Reduction of spike noise in perpendicular recording media by using MnIr antiferromagnetic films

AUTHOR: TANAHASHI Kiwamu; KIKUKAWA Atsushi; SHIMIZU Noboru; HOSOE Yuzuru

CORPORATE SOURCE: Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo 185-8601, Japan

SOURCE: Journal of applied physics, (2002-05-15), 91(10), 8049-8051  
ISSN: 0021-8979 CODEN: JAPIAU

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-126

AN 2002-0243367 PASCAL  
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AB We introduced a NiFe/antiferromagnetic-MnIr bilayer or a NiFe/MnIr/NiFe trilayer below a CoTaZr soft magnetic underlayer in perpendicular recording media as a way of controlling the magnetic domain structure of the soft magnetic underlayer, and we investigated the effect of exchange biasing on the spike noise. Samples consisting of a layer structure-NiFe (5 nm thick)/MnIr (2.5-50 nm)/NiFe (5 nm)/CoTaZr (50-200 nm)-were sputter deposited on precoated glass disks. The samples were heated with a lamp heater and cooled in a magnetic field along the radial direction of the disk. Both uniaxial and unidirectional anisotropies were induced along the magnetic field when the thickness of the MnIr layer was more than 5 nm. The first NiFe layer promoted a fcc-MnIr (111) crystalline texture, while the second NiFe layer enhanced the value of exchange-bias field by about 20%. The exchange-bias field increased from 6 to 24 Oe as the CoTaZr-layer thickness decreased from 200 to 50 nm. Many spikes along the radial direction were observed for a 100-nm-thick CoTaZr single-layer film, while no remarkable spikes were observed for a NiFe/MnIr/NiFe/CoTaZr (100 nm) film. It was found that the NiFe/MnIr/NiFe trilayer restrained the formation of domain walls in the CoTaZr layer, thereby reducing the spike noise. .COPYRGT. 2002 American Institute of Physics.

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ACCESSION NUMBER: 2002-0139606 PASCAL  
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TITLE (IN ENGLISH): Micro/nanomechanical and tribological studies of bulk and thin-film materials used in magnetic recording heads

AUTHOR: XIAODONG LI; BHUSHAN Bharat  
MITTERER Christian (ed.); PIQUE Alberto (ed.); MARCHEV Krassimir (ed.); SCHNEIDER Jochen M. (ed.); VOEVODIN Andrey A. (ed.)

CORPORATE SOURCE: Computer Microtribology and Contamination Laboratory,  
Department of Mechanical Engineering, The Ohio State  
University, 206 West 18th Avenue, Columbus, OH  
43210-1107, United States

The University of Leoben, Department of Physical  
Metallurgy and Materials Testing, Franz Josef Strasse  
18, 8700 Leoben, Austria; US Naval Research  
Laboratory, Code 6372, 4555 Overlook Ave SW,  
Washington DC 20375, United States; The Gillette  
Company, Gillette Advanced Technology Center, US, One  
Gillette Park, Boston MA 02127-1096, United States;  
Department of Physics IFM, Linkoeping University,  
58183 Linkoeping, Sweden; Air Force Research  
Laboratory, AFRL/MLBT, Bldg. 654, 2941 P Street,  
WPAFB, OH 45433-7750, United States

SOURCE: Thin solid films, (2001), 398-99(1), 313-319, 11 refs.  
Conference: 28 International Conference on  
Metallurgical Coatings and Thin Films, San Diego,  
California (United States), 30 Apr 2001  
ISSN: 0040-6090 CODEN: THSFAP

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: Switzerland

LANGUAGE: English

AVAILABILITY: INIST-13597, 354000094314620530

AN 2002-0139606 PASCAL

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AB Micro/nanomechanical characterization of the bulk Al<sub>sub.20</sub>.sub.3-TiC and Ni-Zn ferrite, and thin films of Co-Zr-Ta and Al<sub>sub.20</sub>.sub.3 used in magnetic recording heads have been carried out. Hardness, elastic modulus and scratch resistance of these materials were measured by nanoindentation and microscratching using a nanoindenter. Fracture toughness was measured by indentation using cube corner and Vickers indenters. Friction and wear properties for these materials were measured using an accelerated ball-on-flat tribometer. Al<sub>sub.20</sub>.sub.3-TiC shows the highest hardness, elastic modulus and scratch resistance as well as the lowest wear damage, followed by the Ni-Zn ferrite, Al<sub>sub.20</sub>.sub.3 films, and Co-Zr-Ta film. The Co-Zr-Ta film exhibits the highest fracture toughness, followed by the Al<sub>sub.20</sub>.sub.3-TiC, Al<sub>sub.20</sub>.sub.3 films and Ni-Zn ferrite. There exists a good correlation between mechanical properties and wear damage. Higher mechanical properties result in less wear damage. In general, the bulk Al<sub>sub.20</sub>.sub.3-TiC and Ni-Zn ferrite show lower damage than the Co-Zr-Ta and Al<sub>sub.20</sub>.sub.3 films. For the thin films studied, the Al<sub>sub.20</sub>.sub.3 films show higher mechanical properties and less scratch and wear damage.

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ACCESSION NUMBER: 2002-0062520 PASCAL

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TITLE (IN ENGLISH): Observation of magnetic interaction between  
the soft magnetic and the recording layers  
in double-layer perpendicular media  
Selected Papers from the Eighth Joint Magnetism and  
Magnetic Materials-International  
Magnetics Conference (MMM-Intermag), San  
Antonio, TX, January 7-11, 2001

AUTHOR: HONDA Yukio; TANAHASHI Kiwamu; HIRAYAMA Yoshiyuki;  
KIKUKAWA Atsushi; FUTAMOTO Masaaki

CORPORATE SOURCE: Central Research Laboratory, Hitachi Ltd, Kokubunji,  
Tokyo 185-8601, Japan

SOURCE: IEEE transactions on magnetics, (2001), 37(4, PART1),  
1315-1318, 7 refs.

Conference: 8 Joint MMM-Intermag Conference, San Antonio, TX (United States), 7 Jan 2001  
ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-222H6, 354000099196490260

AN 2002-0062520 PASCAL  
CP Copyright .COPYRGT. 2002 INIST-CNRS. All rights reserved.  
AB Magnetic force microscopy was used to study the magnetic interaction in double-layer perpendicular media between the CoCrPt recording layer and the CoTaZr soft magnetic layer by observing the magnetization structure from the soft magnetic layer side. A strong magnetic interaction between the two layers was observed when the layers were in direct contact. Introducing a thin nonmagnetic layer between the two magnetic layers reduced the magnetic interaction and resulted in the reduction of the media noise of double-layer perpendicular media.

L21 ANSWER 11 OF 20 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED.  
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ACCESSION NUMBER: 2001-0486794 PASCAL  
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TITLE (IN ENGLISH): Improvement of the crystallographic orientation of double-layered perpendicular recording media by using CoCr (Mo)/Cu intermediate layers  
Proceedings of the fifth Perpendicular Magnetic Recording Conference (PMRC 2000), Sendai, Japan, 23-26 October 2000

AUTHOR: TAMAI Ichiro; YAMAMOTO T.; KIKUKAWA A.; TANAHASHI K.; ISHIKAWA A.; FUTAMOTO M.

CORPORATE SOURCE: MURAOKA Hiroaki (ed.); YAMAMOTO Setsuo (ed.)  
Central Research Laboratory, Hitachi, Ltd., 1-280 Higashi-koigakubo, Kokubunji, Tokyo 185-8601, Japan  
Tohoku University, Japan; Yamaguchi University, Japan

SOURCE: Journal of magnetism and magnetic materials, (2001), 235(1-3), 78-81, 4 refs.  
Conference: 5 PMRC 2000 Perpendicular Magnetic Recording Conference, Sendai (Japan), 23 Oct 2000  
ISSN: 0304-8853 CODEN: JMMMDC

DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: Netherlands  
LANGUAGE: English  
AVAILABILITY: INIST-17230, 354000096427200140

AN 2001-0486794 PASCAL  
CP Copyright .COPYRGT. 2001 INIST-CNRS. All rights reserved.  
AB We have introduced intermediate layers of CoCr/Cu and CoCrMo/Cu between a CoCrPtB recording layer and a soft-magnetic CoTaZr underlayer. The combination of the FCC-Cu first-intermediate layer and the HCP-CoCrMo second-intermediate layer was found to enhance the c-axis vertical orientation of the CoCrPtB recording layer. In media with intermediate layers of CoCrMo/Cu, the thickness of the intermediate layers can be reduced without sacrificing good magnetic properties, and this leads to high resolutions.

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ACCESSION NUMBER: 2001-0486793 PASCAL  
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TITLE (IN ENGLISH): Effects of thin carbon intermediate layer on magnetic and structural properties of perpendicular recording media  
Proceedings of the fifth Perpendicular Magnetic Recording Conference (PMRC 2000), Sendai, Japan, 23-26 October 2000

AUTHOR: NAKAGAWA H.; HONDA Y.; KIKUKAWA A.; TANAHASHI K.; ISHIKAWA A.; FUTAMOTO M.

CORPORATE SOURCE: MURAOKA Hiroaki (ed.); YAMAMOTO Setsuo (ed.) Hitachi, Ltd., Central Research Laboratory, 1-280 Higashi-koigakubo, Kokubunzi-shi, Tokyo 185-8601, Japan

SOURCE: Tohoku University, Japan; Yamaguchi University, Japan Journal of magnetism and magnetic materials, (2001), 235(1-3), 73-77, 6 refs.  
Conference: 5 PMRC 2000 Perpendicular Magnetic Recording Conference, Sendai (Japan), 23 Oct 2000  
ISSN: 0304-8853 CODEN: JMMMDc

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: Netherlands

LANGUAGE: English

AVAILABILITY: INIST-17230, 354000096427200130

AN 2001-0486793 PASCAL  
CP Copyright .COPYRGT. 2001 INIST-CNRS. All rights reserved.  
AB CoCrPt/CoCr/carbon films were sputter-deposited on CoTaZr soft-magnetic underlayers and the effects of a carbon intermediate layer on magnetic and recording properties were investigated by changing a heating sequence in sample preparations. A heating process before a CoCr deposition was needed to obtain a high perpendicular coercivity. The carbon diffusion into a CoCr layer during its deposition led to small crystal grains in the CoCr layer and thereby the CoCrPt layer. Consequently, a high perpendicular coercivity was obtained, which was considered due to the change in magnetization process from a wall motion to a coherent rotation. The use of a thin (1-5 nm) carbon intermediate layer was found to be effective to obtain both low noise and high resolution.

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ACCESSION NUMBER: 2000-0018449 PASCAL  
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TITLE (IN ENGLISH): Frequency and transient response of Yoke flux for 45/55 NiFe and CoTaZr thin film write heads  
1999 International Magnetics Conference,  
INTERMAG '99, Kyongju, Korea, May 18-21, 1999. Part I

AUTHOR: JURY J.; GEORGE P.; JUDY J. H.  
RAMANAN V. R. (ed.); WELLER Dieter (ed.); TAEK DONG LEE (ed.); BULARZIK Joseph H. (ed.); INOMATA Koichiro (ed.); SUNG-CHUL SHIN (ed.); PETRIE Edward M. (ed.); MIURA Yoshimasa (ed.); PASQUALE Massimo (ed.); COCHRAN Dewey E. (ed.)

CORPORATE SOURCE: The Center for Micromagnetics and Information Technologies (MINT), University of Minnesota, Minneapolis, MN 55455, United States; Electrical Engineering, St. Cloud State University, St. Cloud MN 56301, United States  
ABB Power T&D Company, United States; IBM, United States; Korea Advanced Institute of Science and Technology, Korea, Republic of; Magnetics International, United States; Toshiba Corporation, Japan; Fujitsu Limited, Japan; Istituto Elletrotecnico Nazionale Galileo Ferraris, Italy; Naval Research

Laboratory, United States  
The Korean Magnetics Society, Korea, Republic of  
(patr.); IEEE. Magnetics Society, United States  
(patr.)

SOURCE: IEEE transactions on magnetics, (1999), 35(5, PART1),  
2508-2510, 3 refs.  
Conference: 1999 International Magnetics Conference  
(INTERMAG '99), Kyongju (Korea, Republic of), 18 May  
1999  
ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-222H6, 354000087972360920

AN 2000-0018449 PASCAL  
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L21 ANSWER 14 OF 20 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED.  
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ACCESSION NUMBER: 1999-0183311 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 1999 American Institute of  
Physics. All rights reserved.

TITLE (IN ENGLISH): Head parameter sensitivity study of the intrinsic  
field reversal time

AUTHOR: GEORGE Peter K.; JURY Jason C.; JUDY Jack  
CORPORATE SOURCE: St. Cloud State University, Department of Electrical  
Engineering, St. Cloud, Minnesota 56301-4498;  
University of Minnesota, Electrical and Computer  
Engineering, Minneapolis, Minnesota 55455-0154

SOURCE: Journal of applied physics, (1999-04-15), 85(8),  
4979-4981  
ISSN: 0021-8979 CODEN: JAPIAU

DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-126

AN 1999-0183311 PASCAL  
CP Copyright .COPYRGT. 1999 American Institute of Physics. All rights  
reserved.

AB Studies to establish the key head sensitivity parameters affecting the  
intrinsic field reversal time are reported. The effect of supply voltage,  
eddy current damping, head moment, and turns are investigated using the  
nonlinear, eddy current damped, thin-film write head model proposed by  
Klaassen and Hirko [IEEE Trans. Magn. 32, 3524 (1996)]. The model is  
realized using PSPICE circuit simulation. Eddy current time constant  
dependencies derived by Wood, Williams, and Hong [IEEE Trans. Magn. 26,  
2954 (1990)] are used to explore materials with magnetizations ranging  
from  $4\pi M_{s}$ =10-20 kG, resistivities of 25 and 125  
 $\mu\Omega\text{-cm}$  and heads with 10-15 turns. Confirmation of the above  
writer sensitivities has been investigated using a short yoke 37 turn,  
high moment, low eddy current CoTaZr inductive head. From the  
experimentally determined model parameters, rise time results are  
computed for an improved 10 turn writer design. The results are shown to  
approach or exceed the limiting dynamics of the spin system. .COPYRGT.  
1999 American Institute of Physics.

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ACCESSION NUMBER: 1996-0355587 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 1996 INIST-CNRS. All rights  
reserved.

TITLE (IN ENGLISH): Induced magnetic anisotropy in Co-TM-Zr

TITLE: (TM=Nb, Ta, Mo, W and Ni) amorphous sputtered films  
AUTHOR: En Japonais  
CORPORATE SOURCE: OTOMO S.  
SOURCE: Central Research Laboratory, Hitachi, Ltd., Tokyo,  
Japan  
Nippon Kinzoku Gakkaishi : (1952), (1996), 60(5),  
529-536, 32 refs.  
ISSN: 0021-4876 CODEN: NIKGAV

DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: Japan  
LANGUAGE: Japanese  
SUMMARY LANGUAGE: English  
AVAILABILITY: INIST-7306, 354000060360660140

AN 1996-0355587 PASCAL  
CP Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.  
AB The dependence of induced anisotropy on the composition of Co-TM-Zr (TM = Nb, Ta, Mo, W, and Ni) amorphous sputtered films is investigated. The anisotropy field, H.sub.k of the amorphous films increases with increasing the saturation magnetic flux density, B.sub.s. The anisotropy field, H.sub.k is the largest in Co-Ni-Zr films and the strength of H.sub.k decreases in the order of Co-Ta-Zr, Co-W-Zr, Co-Mo-Zr and Co-Nb-Zr films, when H.sub.k is compared among the films with the same B.sub.s. The composition dependence of induced anisotropy in Co-TM-Zr films can be understood by the pair-ordering model assuming that a pseudodipole interaction between a cobalt atom pair depends on the magnetic moment of the Cobalt atom. The relaxation time of anisotropy changes in Co-Nb-Zr and Co-W-Zr films increases by 2 to 3 orders of magnitude by pre-annealing at 400° C, and the activation energy of 3.2 to 3.4 x 10<sup>1.9</sup> J (2.0 to 2.1 eV), being one of the highest activation energies for the amorphous alloys, is determined by the analysis based on a Gaussian distribution for the relaxation time.

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ACCESSION NUMBER: 1995-0554165 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 1995 INIST-CNRS. All rights reserved.

TITLE (IN ENGLISH): Metal core recession and heat stain studies of MIG heads sliding against cobalt-doped gamma iron oxide and metal particle tapes

AUTHOR: TSUCHIYA T.; BHARAT BUSHAN  
CORPORATE SOURCE: Ohio State univ., dep. mechanical eng., computer microtribology contamination lab., Columbus OH 43210-1107, United States

SOURCE: Tribology transactions, (1995), 38(4), 941-949, 18 refs.  
Conference: ASME/Society of Tribologists and Lubrication Engineers STLE. Tribology conference, Lahaina HI (United States), 16 Oct 1994  
ISSN: 1040-2004

DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-8977, 354000050220180240

AN 1995-0554165 PASCAL  
CP Copyright .COPYRGT. 1995 INIST-CNRS. All rights reserved.  
AB Metal-in-gap (MIG) heads are commonly used for high-density magnetic recording. Metal core recession and head stains increase the gap between the tape and the head, resulting in signal loss. In this study, accelerated sliding wear tests of Co- $\gamma$ Fe<sub>20.3</sub> and metal particle (MP) tapes against MIG heads made of three different

amorphous and nanocrystalline metals were conducted under various operating conditions. Metal core recess and propensity for head staining were measured. The degree of tape contact with a recessed core was also measured by pressing the tape against a glass slide with Cr grids and using an optical interference technique. The authors found that the core recess was about the same for all three core metals. Core recess by MP tape was larger than that by oxide tape. The tape speed appeared to have little effect on the recess value. The authors also found that significant recess may occur during initial contouring of the head surface ; however, after sliding for about 250 km, core recess reaches a steady-state value which may be either higher or lower than the initial values. The mechanism of core recession was studied. The authors believe that core recession occurs as a consequence of the debris trapped between the tape and the core, in addition to that caused by some tape contact. Formation of head stains was observed in all combinations. The stains formed on the metal cores were heaviest for CoNbZr metal, followed by CoTaZr and FeTaC. Co- $\gamma$ Fe.sub.20.sub.3 tape produced a more severe stain than the MP tape. The apparent roughening of head rubbing surface observed for CoNbZr heads sliding against Co- $\gamma$ Fe.sub.20.sub.3 tape was due to the formation of stains.

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ACCESSION NUMBER: 1994-0609132 PASCAL  
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TITLE (IN ENGLISH): Flux propagation of single-layered and six-layered thin film magnetic heads

AUTHOR: NARUMI S.-I.; AIHARA M.; FUKUI H.; SUDO S.; MITSUOKA K.; IMAGAWA T.

CORPORATE SOURCE: Hitachi Ltd, Hitachi res. lab., Hitachi, Ibaraki 319-12, Japan  
IEEE, New York NY, United States (patr.)  
IEEE transactions on magnetics, (1993), 29(6, p.1), 2560-2562, 10 refs.

SOURCE: Conference: INTERMAG'93 : international magnetics conference, Stockholm (Sweden), 13 Apr 1993  
ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-222 H6, 354000048692370670

AN 1994-0609132 PASCAL  
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L21 ANSWER 18 OF 20 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED.  
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ACCESSION NUMBER: 1994-0269335 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 1994 American Institute of Physics. All rights reserved.

TITLE (IN ENGLISH): Magnetic domain structures and dynamics of CoTaZr/Cr multilayered films

AUTHOR: YAMAMOTO Kazuhiro; MATSUYAMA Hideo; HAMAKAWA Yoshihiro; KITADA Masahiro

CORPORATE SOURCE: Central Research Laboratory, Hitachi Ltd., Kokubunji, Tokyo 185, Japan  
Journal of Applied Physics, (1994-03-15), 75(6), 2998-3001  
ISSN: 0021-8979 CODEN: JAPIAU

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-126  
AN 1994-0269335 PASCAL  
CP Copyright .COPYRGT. 1994 American Institute of Physics. All rights reserved.  
AB The permeability, domain structure, and dynamic magnetization change of CoTaZr/Cr multilayered stripes are studied. The frequency dependence of permeability is improved by lamination with Cr layers, which eliminates the closure domain structure. An edge curling wall (ECW) is observed near the edge of the multilayered stripes. The width of the ECW agrees well with calculations and is independent of stripe width. The magnetization in the ECW is difficult to rotate by the external magnetic field; therefore, the permeability of a narrow stripe is less than that of wider stripes.

L21 ANSWER 19 OF 20 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED.  
on STN

ACCESSION NUMBER: 1992-0082377 PASCAL  
TITLE (IN ENGLISH): 180° wall movement in a magnetic thin-film closure domain structure in a high-frequency field  
AUTHOR: ISHIKAWA C.; SASAKI S.; MORIWAKI E.; HAMAKAWA Y.; SHIIKI K.; SHINAGAWA K.  
CORPORATE SOURCE: Hitachi Ltd, cent. res. lab., Tokyo 185, Japan  
SOURCE: Journal of applied physics, (1991), 70(4), 2259-2263, 7 refs.  
ISSN: 0021-8979 CODEN: JAPIAU  
DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-126, 354000010013050540  
AN 1992-0082377 PASCAL  
AB The dynamic behavior of a 180.<sup>sup.o</sup> wall was observed in a Co-based amorphous alloy film using a Kerr microscope. As a function of an anisotropy direction the amplitude of the 180.<sup>sup.o</sup> wall movement was measured with the drive field applied transverse to the 180° wall of the closure domain structure. The anisotropy direction was varied by magnetic heat treatment. It was found that the 180.<sup>sup.o</sup> wall moved independently of the anisotropy direction, that is, the 180.<sup>sup.o</sup> wall movement is related only to the applied high-frequency field

L21 ANSWER 20 OF 20 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED.  
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ACCESSION NUMBER: 1990-0001545 PASCAL  
TITLE (IN ENGLISH): Analysis of domain structure by calculating magnetostatic energy for magnetic thin film  
TITLE (IN FRENCH): Analyse de la structure des domaines en calculant l'energie magnetostatique pour les couches minces magnetiques  
AUTHOR: SAKA C.; SHIIKI K.; SHINAGAWA K.  
CORPORATE SOURCE: Hitachi ltd., Tokyo 185, Japan  
SOURCE: Journal of applied Physics, (1989), 66(3), 1285-1290, 5 refs.  
ISSN: 0021-8979  
DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: CNRS-126  
AN 1990-0001545 PASCAL  
ABFR Determination d'une methode permettant de calculer l'energie magnetostatique par une approximation bidimensionnelle. Analyse, a partir de l'energie magnetostatique, de la structure des domaines d'une couche mince magnetique. L'energie E.sub.S est calculee comme le produit du

champ demagnetisant H.sub.d et de l'aimantation M. Comme H.sub.d varie a l'intérieur d'un domaine, E.sub.S doit être calculee dans un nombre de regions sousdivisees, dans lequel H.sub.d est uniforme. Calcul de la direction d'aimantation correspondant a l'energie minimale. Application a l'alliage CoTaZr

=> Co-Ta-zr

L22 0 FILE AGRICOLA  
L23 0 FILE BIOTECHNO  
L24 1 FILE CONFSCI  
L25 0 FILE HEALSAFE  
L26 0 FILE LIFESCI  
L27 8 FILE PASCAL

TOTAL FOR ALL FILES

L28 9 CO-TA-ZR

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L29 9 DUP REM L28 (0 DUPLICATES REMOVED)

=> d 129 ibib abs total

L29 ANSWER 1 OF 9 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on  
STN

ACCESSION NUMBER: 2002-0139606 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 2002 INIST-CNRS. All rights reserved.  
TITLE (IN ENGLISH): Micro/nanomechanical and tribological studies of bulk and thin-film materials used in magnetic recording heads  
Proceedings of the 28th International Conference on Metallurgical Coatings and Thin Films, San Diego, California, April 30-May 4 2001

AUTHOR: XIAODONG LI; BHUSHAN Bharat  
MITTERER Christian (ed.); PIQUE Alberto (ed.); MARCHEV Krassimir (ed.); SCHNEIDER Jochen M. (ed.); VOEVODIN Andrey A. (ed.)

CORPORATE SOURCE: Computer Microtribology and Contamination Laboratory, Department of Mechanical Engineering, The Ohio State University, 206 West 18th Avenue, Columbus, OH 43210-1107, United States

The University of Leoben, Department of Physical Metallurgy and Materials Testing, Franz Josef Strasse 18, 8700 Leoben, Austria; US Naval Research Laboratory, Code 6372, 4555 Overlook Ave SW, Washington DC 20375, United States; The Gillette Company, Gillette Advanced Technology Center, US, One Gillette Park, Boston MA 02127-1096, United States; Department of Physics IFM, Linköping University, 58183 Linköping, Sweden; Air Force Research Laboratory, AFRL/MLBT, Bldg. 654, 2941 P Street, WPAFB, OH 45433-7750, United States

SOURCE: Thin solid films, (2001), 398-99(1), 313-319, 11 refs.  
Conference: 28 International Conference on Metallurgical Coatings and Thin Films, San Diego, California (United States), 30 Apr 2001

DOCUMENT TYPE: ISSN: 0040-6090 CODEN: THSFAP  
BIBLIOGRAPHIC LEVEL: Journal; Conference

COUNTRY: Analytic  
LANGUAGE: Switzerland

LANGUAGE: English

AVAILABILITY: INIST-13597, 354000094314620530  
AN 2002-0139606 PASCAL  
CP Copyright .COPYRGT. 2002 INIST-CNRS. All rights reserved.  
AB Micro/nanomechanical characterization of the bulk Al.<sub>20</sub>.<sub>3</sub>-TiC and Ni-Zn ferrite, and thin films of Co-Zr-Ta and Al.<sub>20</sub>.<sub>3</sub> used in magnetic recording heads have been carried out. Hardness, elastic modulus and scratch resistance of these materials were measured by nanoindentation and microscratching using a nanoindenter. Fracture toughness was measured by indentation using cube corner and Vickers indenters. Friction and wear properties for these materials were measured using an accelerated ball-on-flat tribometer. Al.<sub>20</sub>.<sub>3</sub>-TiC shows the highest hardness, elastic modulus and scratch resistance as well as the lowest wear damage, followed by the Ni-Zn ferrite, Al.<sub>20</sub>.<sub>3</sub> films, and Co-Zr-Ta film. The Co-Zr-Ta film exhibits the highest fracture toughness, followed by the Al.<sub>20</sub>.<sub>3</sub>-TiC, Al.<sub>20</sub>.<sub>3</sub> films and Ni-Zn ferrite. There exists a good correlation between mechanical properties and wear damage. Higher mechanical properties result in less wear damage. In general, the bulk Al.<sub>20</sub>.<sub>3</sub>-TiC and Ni-Zn ferrite show lower damage than the Co-Zr-Ta and Al.<sub>20</sub>.<sub>3</sub> films. For the thin films studied, the Al.<sub>20</sub>.<sub>3</sub> films show higher mechanical properties and less scratch and wear damage.

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ACCESSION NUMBER: 1996-0335490 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.

TITLE (IN ENGLISH): Magnetic properties and thermal stability of Co-TM-Zr (TM=Nb, Ta, Mo, W, and Ni) amorphous sputtered films for magnetic heads  
AUTHOR: OTOMO S.  
CORPORATE SOURCE: Central Research Laboratory, Hitachi Ltd., Kokubunji, Tokyo 185, Japan  
SOURCE: Journal of materials science, (1996), 31(14), 3805-3812, 12 refs.  
ISSN: 0022-2461 CODEN: JMTSAS

DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United Kingdom  
LANGUAGE: English  
AVAILABILITY: INIST-12733, 354000060409770280

AN 1996-0335490 PASCAL  
CP Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.  
AB The magnetic properties and thermal stability Co-TM-Zr (TM = Nb, Ta, Mo, W, and Ni) amorphous films prepared by rf diode sputtering are investigated. Amorphous films with a homogeneous structure and coercive force H.<sub>c</sub> of less than 20 A m<sup>-1</sup> are obtained at an argon gas pressure of 0.3-1 Pa. The formation range of the amorphous films is broad in the systems containing Ta and Nb, whereas it is limited to the composition range greater than 4-5 at % of Zr in the systems of Mo, W, and Ni. The magnetostriction  $\lambda$ .<sub>s</sub> depends on the concentration ratio of Zr and the TM. Films with zero  $\lambda$ .<sub>s</sub> are obtained at concentration ratios C.<sub>r</sub>/C.<sub>M</sub> ranging from 0.3 for Co-Nb-Zr films to 1.5-1.7 for Co-W-Zr films. The crystallization temperature T.<sub>x</sub> is highest in Co-Ta-Zr films and lowest in Co-Mo-Zr films when  $\lambda$ .<sub>s</sub> is zero and both films have the same saturation magnetic flux density B.<sub>s</sub>. The anisotropy field H.<sub>k</sub> is highest in Co-Ni-Zr films and lowest in Co-Nb-Zr films. These results indicate that Co-Ta-Zr and Co-Nb-Zr amorphous films are suitable for use as magnetic head materials because of the Co-Ta-Zr film's high T.<sub>x</sub> and B.<sub>s</sub>, and the Co-Nb-Zr film's small  $\lambda$ .<sub>s</sub> and low H.<sub>k</sub>.

L29 ANSWER 3 OF 9 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on  
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ACCESSION NUMBER: 1996-0355587 PASCAL  
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TITLE (IN ENGLISH): Induced magnetic anisotropy in Co-TM-Zr (TM=Nb, Ta, Mo, W and Ni) amorphous sputtered films  
TITLE: En Japonais  
AUTHOR: OTOMO S.  
CORPORATE SOURCE: Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan  
SOURCE: Nippon Kinzoku Gakkaishi : (1952), (1996), 60(5), 529-536, 32 refs.  
ISSN: 0021-4876 CODEN: NIKGAV

DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: Japan  
LANGUAGE: Japanese  
SUMMARY LANGUAGE: English  
AVAILABILITY: INIST-7306, 354000060360660140

AN 1996-0355587 PASCAL  
CP Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.  
AB The dependence of induced anisotropy on the composition of Co-TM-Zr (TM = Nb, Ta, Mo, W, and Ni) amorphous sputtered films is investigated. The anisotropy field, H.sub.k of the amorphous films increases with increasing the saturation magnetic flux density, B.sub.s. The anisotropy field, H.sub.k is the largest in Co-Ni-Zr films and the strength of H.sub.k decreases in the order of Co-Ta-Zr, Co-W-Zr, Co-Mo-Zr and Co-Nb-Zr films, when H.sub.k is compared among the films with the same B.sub.s. The composition dependence of induced anisotropy in Co-TM-Zr films can be understood by the pair-ordering model assuming that a pseudodipole interaction between a cobalt atom pair depends on the magnetic moment of the Cobalt atom. The relaxation time of anisotropy changes in Co-Nb-Zr and Co-W-Zr films increases by 2 to 3 orders of magnitude by pre-annealing at 400° C, and the activation energy of 3.2 to 3.4 x 10.sup.-sup.1.sup.9 J (2.0 to 2.1 eV), being one of the highest activation energies for the amorphous alloys, is determined by the analysis based on a Gaussian distribution for the relaxation time.

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ACCESSION NUMBER: 1994-0609132 PASCAL  
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TITLE (IN ENGLISH): Flux propagation of single-layered and six-layered thin film magnetic heads  
AUTHOR: NARUMI S.-I.; AIHARA M.; FUKUI H.; SUDO S.; MITSUOKA K.; IMAGAWA T.  
CORPORATE SOURCE: Hitachi Ltd, Hitachi res. lab., Hitachi, Ibaraki 319-12, Japan  
SOURCE: IEEE, New York NY, United States (patr.)  
IEEE transactions on magnetics, (1993), 29(6, p.1), 2560-2562, 10 refs.  
Conference: INTERMAG'93 : international magnetics conference, Stockholm (Sweden), 13 Apr 1993  
ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-222 H6, 354000048692370670

AN 1994-0609132 PASCAL  
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L29 ANSWER 5 OF 9 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on  
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ACCESSION NUMBER: 1990-0001545 PASCAL  
TITLE (IN ENGLISH): Analysis of domain structure by calculating magnetostatic energy for magnetic thin film  
TITLE (IN FRENCH): Analyse de la structure des domaines en calculant l'energie magnetostatique pour les couches minces magnetiques  
AUTHOR: SAKA C.; SHIIKI K.; SHINAGAWA K.  
CORPORATE SOURCE: Hitachi ltd., Tokyo 185, Japan  
SOURCE: Journal of applied Physics, (1989), 66(3), 1285-1290, 5 refs.  
ISSN: 0021-8979

DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: CNRS-126

AN 1990-0001545 PASCAL  
ABFR Determination d'une methode permettant de calculer l'energie magnetostatique par une approximation bidimensionnelle. Analyse, a partir de l'energie magnetostatique, de la structure des domaines d'une couche mince magnetique. L'energie E.sub.S est calculee comme le produit du champ demagnetisant H.sub.d et de l'aimantation M. Comme H.sub.d varie a l'interieur d'un domaine, E.sub.S doit etre calculee dans un nombre de regions sousdivisees, dans lequel H.sub.d est uniforme. Calcul de la direction d'aimantation correspondant a l'energie minimale. Application a l'alliage CoTaZr

L29 ANSWER 6 OF 9 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on  
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ACCESSION NUMBER: 1989-0198847 PASCAL  
TITLE (IN ENGLISH): High-frequency permeability in double-layered structure of amorphous Co-Ta-Zr films  
TITLE (IN FRENCH): Permeabilite a haute frequence dans la structure a double couche d'alliage amorphe Co-Ta-Zr  
AUTHOR: OCHIAI Y.; HAYAKAWA M.; HAYASHI K.; ASO K.  
CORPORATE SOURCE: Sony corp., Hodogaya-ku Yokohama 240, Japan  
SOURCE: Journal of applied Physics, (1988), 63(11), 5424-5426, 5 refs.  
ISSN: 0021-8979

DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: CNRS-126

AN 1989-0198847 PASCAL  
ABFR Etude de la permeabilite magnetique a haute frequence pour les couches d'epaisseur 5,8 a 11,6  $\mu\text{m}$  en alliage amorphe Co.sub.8.sub.3Ta.sub.1.sub.1Zr.sub.6. Description de la dependance en frequence en terme de pertes de courant de Foucault. Pour les couches doubles contenant SiO.sub.2, la degradation de la permeabilite devient reelle avec la decroissance de l'epaisseur de SiO.sub.2

L29 ANSWER 7 OF 9 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on  
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ACCESSION NUMBER: 1986-0370356 PASCAL  
TITLE (IN ENGLISH): Thermal stability of softmagnetism and magnetic properties of Co-TM-Zr (TM=Nb, Ta)  
TITLE (IN FRENCH): Stabilite thermique du magnetisme doux et des proprietes magnetiques de Co-TM-Zr (TM=Nb, Ta)

AUTHOR: OMATA Y.; KUROE A.; KAMINAKA N.  
 CORPORATE SOURCE: Matsushita Electrical Industrial co., Osaka, Japan  
 SOURCE: Journal of Magnetism and magnetic Materials, (1986),  
 54-57(part. 1-3), 1609-1610, 7 refs.  
 Conference: International conference on magnetism. 10,  
 San Francisco CA, 1985  
 ISSN: 0304-8853  
 DOCUMENT TYPE: Journal; Conference  
 BIBLIOGRAPHIC LEVEL: Analytic  
 COUNTRY: Netherlands  
 LANGUAGE: English  
 AVAILABILITY: CNRS-17230  
 AN 1986-0370356 PASCAL  
 ABFR Etude de la cinetique de relaxation du magnetisme de couches amorphes  
 Co.sub.8.sub.2Nb.sub.1.sub.3Zr.sub.5 et Co.sub.8.sub.2Ta.sub.1.sub.4Zr.su  
 b.4. On discute de l'origine de la superiorite de Co-Ta  
 -Zr. Determination des constantes de rigidite d'onde de spin  
 par aimantation et mesure de resonance ferromagnetique  
  
 L29 ANSWER 8 OF 9 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on  
 STN  
 ACCESSION NUMBER: 1984-0307556 PASCAL  
 TITLE (IN ENGLISH): Magnetic properties of zero magnetostriction  
 Co-Ta-Zr amorphous alloy  
 films deposited by RF sputtering  
 TITLE (IN FRENCH): Proprietes magnetiques de couches d'alliage amorphe  
 Ca-Ta-Zr a magnetostriction nulle deposee par  
 pulverisation radio-frequence  
 AUTHOR: HOSAI Y.; KAZAMA H.; NAOE M.; YAMANAKA S.  
 CORPORATE SOURCE: Tokyo inst. technology, Meguro-ku Tokyo 152, Japan  
 SOURCE: IEEE transactions on magnetics, (1983), 19(5),  
 1958-1960, 11 refs.  
 Conference: 1983 International magnetics conference,  
 Philadelphia PA, 1983  
 ISSN: 0018-9464  
 DOCUMENT TYPE: Journal; Conference  
 BIBLIOGRAPHIC LEVEL: Analytic  
 COUNTRY: United States  
 LANGUAGE: English  
 AVAILABILITY: CNRS-222H6  
 AN 1984-0307556 PASCAL  
 ABFR Les couches amorphes a magnetostriction nulle et faible force coercitive  
 (.peu different de 0,10 Oe) sont obtenues pour des teneurs en Co de  
 l'ordre de 95%. Dans ces conditions, l'aimantation a saturation  $4\pi M_s$   
 est d'environ 15 kG a temperature ambiante. Pour des teneurs en Co  
 inferieures a 92,4%, on peut induire une forte anisotropie uniaxiale par  
 recuit dans un champ magnetique statique  
  
 L29 ANSWER 9 OF 9 CONFSCI COPYRIGHT 2007 CSA on STN  
 ACCESSION NUMBER: 83:42472 CONFSCI  
 DOCUMENT NUMBER: 83062198  
 TITLE: Magnetic properties of zero magnetostriction Co-  
 Ta-Zr amorphous alloy films deposited by  
 RF sputtering  
 AUTHOR: Hoshi, Y.; Kazama, H.; Naoe, M.; Yamanaka, S.  
 CORPORATE SOURCE: Tokyo Inst. Technol., 2-12-1, Oh-okayama, Meguro-ku, Tokyo  
 152 Japan  
 SOURCE: Proceedings in: "IEEE Transactions on Magnetics", Sep.  
 1983, IEEE Inc., 345 East 47 St., New York, NY 10017, USA,  
 ISSN 0018-9464.  
 Meeting Info.: 832 0518: International Magnetics Conference  
 - INTERMAG (8320518). Philadelphia, PA (USA). 5-8 Apr 83.  
 Institute of Electrical & Electronics Engineers (IEEE)  
 Magnetics Society.

DOCUMENT TYPE: Conference  
FILE SEGMENT: DCCP  
LANGUAGE: UNAVAILABLE

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